Protection of Critical Environmental Infrastructure

A Report on a Series of Infrastructure Security Summits

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Overview

- Background
- Overall findings and driving forces
- Guidelines for Action
- Technology characteristics

Background

The infrastructure security summits:

- Conducted by The Infrastructure Security Partnership, and through CERF's* Executive Program Series
- Brought together senior level government and private sector executives
- Addressed policy, technology, and contingency planning issues
- Covered cross-cutting issues and specific sectors

***The Civil Engineering Research Foundation, ASCE's research arm**
www.cerf.org

The Infrastructure Security Partnership

- An association of associations and agencies
- Founding members: ACEC, AIA, ASCE, AGC, CII, FEMA, FFC, NIST, NAVFAC, SAME, USACE
- Purpose:
  - Facilitate broad dialogue and collaboration
  - Offer sources of technical support and comment

www.tisp.org

Workshop Topics

- Protecting Infrastructure – the first post 9/11 summit of construction industry and government executives
- Critical Infrastructure Protection Priorities: The Built Environment -- commissioned by the Executive Office of the President
- Building System Security Summit
- Critical Water Infrastructure Dialogue
- Securing the Nation's Surface Transportation Systems

Critical Environmental Infrastructure

- Definition:
  - Physical facilities providing essential environmental protection, control, and health and safety
  - Facilities that could compromise environmental protection, control, and health and safety if attacked
- Examples:
  - Water and wastewater systems
  - Energy systems
  - Chemical production and storage

Overall Findings

- Build broader Collaboration
- Define a Risk-based response
- Adopt Performance-based technology
- Strategies should include:
  - Immediate action
  - Tactics evolving over time
- Identify measures to meet Multiple Challenges

We haven’t the money,
So we’ll have to think.

- Lord Rutherford

Driving Forces

- Mission Diversity
- Decentralization of infrastructure
- Tight finance and force delivery ratios
- Increasing time, cost, and risk of long supply lines
- Increased focus on security and force protection
- New codes, standards, and regulations
- Paradigm shifting technology innovation

Today, if you are not confused,
You are just not thinking clearly

- L. Peter

Guidelines:_
Assess and Measure

- Conduct a threat and risk assessment
- Apply consistent standards and metrics
- Look at the whole system

For more info:
www.asme.org

Guidelines:
Plan and Train

- Develop system and local facility contingency plans
- Include strategic, tactical, and operational issues
- Obtain cross-disciplinary, multi-stakeholder involvement

Plans are worthless,
Planning is priceless.
- Winston Churchill

Guidelines:
Build Alliances

- Improve intra- and inter-organization/agency coordination
- Copy, borrow, leverage tools and methods
- Capture lessons learned overseas

If everyone is thinking alike,
Then someone isn’t thinking
- Gen. George S. Patton, Jr.

Guidelines:_
Change the Facility

- Multi-function innovation -- improve productivity while enhancing security
- Increase design and ops redundancy
- Focus on how to manage consequences

Guidelines: **Accelerate the adoption of R&D**

- Collaborate in technology evaluation and demonstration
- Generate credible performance data
- Develop links with existing evaluation programs (e.g., the Combating Terrorism Technical Support Working Group, www.tswg.org)
- Remove barriers to innovation

Learning is not compulsory;

Neither is survival.

- W. Edwards Deming

Key Technologies

- Surveillance and monitoring
- Access control
- In-service maintenance and repair
- Automated controls
- Materials
- Modular construction techniques
- Small-scale, decentralized infrastructure

Information Technology

- Facility Information Systems
  - O&M
  - First responders
  - Diagnosis and forensics
- Robots and automation
- Integrated data and communications systems
- Analytical and sensing technologies (real time)

Its better to know some of the questions

Than all of the answers.

- James Thurber

New Construction Approaches

- Mass produced modular systems
- Advanced project delivery technology
- Innovative service restoration technology
- Asset hardening technology
- More cost effective drilling and excavation
- New integrated barrier design

SUMMARY

- Collaboration
- Risk-based response
- Performance-based technology
- Multiple timeframes
- Multi-function technology

Adversity has the effect of eliciting talents,

Which in prosperous circumstances would

Have lain dormant

- Horace

Additional Resources

- www.tisp.org
- www.cerf.org
- www.asme.org – risk assessment guidance
- www.epa.gov/safewater/security
  http://www.waterisac.org/ -- physical and cyber security info on threats to water